IN THE CLAIMS:

Please cancel claims 2, 3, 8, 9 and 18 without prejudice.

Kindly amend claims 1, 4, 7, 10, 13-15 and 19, add new claims 20 and 21 as follows.

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A method of storing substantial data integrating shape and physical properties, comprising the following steps:

an external data input step (A) for inputting external data consisting of boundary data of an object;

an Octree division step (B) for dividing, by modified Octree division, the external data into cubical divided cells with boundary surfaces orthogonal to each other, wherein each divided cell is classified as either a non-boundary cell located in the interior or in the outside region of the object, or as a boundary cell including a boundary surface of the object, wherein the modified Octree division comprises the steps of:

i. re-dividing by Octree division only boundary cells, wherein each boundary cell is divided into smaller cells, and each smaller cell is then classified as either a non-boundary cell or a boundary cell; and

ii. acquiring cut points by replacing each boundary cell, either strictly or approximately, by cut points on twelve ridge lines in three dimensions and on four ridge lines in two dimensions, wherein re-division of only boundary cells is

performed until sufficient cut points are acquired to reconstruct boundary shape elements, including boundary surfaces, included in the external data; and

a cell data storage step (C) for storing the values of physical properties for each of the cells.

2. (Canceled)

3. (Canceled)

4. (Currently Amended) The method of storing substantial data integrating shape and physical properties according to claim ~~1~~2, wherein each non-boundary~~internal~~ cell has one kind of physical property value as an attribute, and each boundary cell has two kinds of physical property values relating respectively to the interior of the object and to regions outside of the object.

5. (Previously presented) The method of storing substantial data integrating shape and physical properties according to claim 1, wherein physical property values consist of constant values which do not change by simulation, and variables which change as a result of simulation.

6. (Previously presented) The method of storing substantial data integrating shape and physical properties according to claim 1, wherein the external data is selected from the group consisting of polygon data representing a polyhedron element, a tetrahedron element or a hexahedron element for a finite-element method, curved surface data for a three dimensional CAD or CG tool, and data for representing the surface of another solid as information comprising partial planes and curved surfaces.

7. (Currently amended) A method of storing substantial data integrating shape and physical properties, comprising the following steps:

inputting to a computer external data consisting of boundary data of an object;

dividing, by modified Octree division, the external data into cubical first cells with boundary surfaces orthogonal to each other, wherein each first cell is classified as either a non-boundary cell located in the interior or the outside region of the object, or as a boundary cell including a boundary surface of the object, wherein the modified Octree division comprises the steps of:

i. re-dividing by Octree division only boundary cells, wherein each boundary cell is divided into smaller cells, and each smaller cell is then classified as either a non-boundary cell or a boundary cell; and

ii. acquiring cut points by replacing each boundary cell, either strictly or approximately, by cut points on twelve ridge lines in three dimensions and on four ridge lines in two dimensions, wherein re-division of only boundary cells is performed until sufficient cut points are acquired to reconstruct boundary shape

elements, including boundary surfaces, included in the external data; and

storing the values of physical properties for each of the first cells.

8. (Canceled)

9. (Canceled)

10. (Currently amended) The method of storing substantial data integrating shape and physical properties according to claim ~~7~~8, wherein each non-boundary~~internal~~ cell has one kind of physical property value as an attribute, and each boundary cell has two kinds of physical property values relating respectively to the interior of the object and to regions outside of the object.

11. (Previously presented) A method of storing substantial data integrating shape and physical properties according to claim 7, wherein physical property values consist of constant values that do not change by simulation and variables that change as a result of simulation.

12. (Previously presented) A method of storing substantial data integrating shape and physical properties according to claim 7, wherein the external data is selected from the group consisting of polygon data representing a polyhedron element, a tetrahedron element or a hexahedron element for a finite-element method, curved surface data for a three dimensional CAD or CG tool, and data for representing the surface of

another solid as information comprising partial planes and curved surfaces.

13. (Currently amended) A method of storing substantial data integrating shape and physical properties according to claim 7, wherein ~~each first cell is classified as either an internal cell located in the interior of the object or a boundary cell including a boundary surface of the object, then~~ each first cell that is a boundary cell is divided by modified Octree division into cubical second cells with boundary surfaces orthogonal to each other, and each second cell is classified as either ~~an internal~~ non-boundary cell located in the interior or in the outside region of the object, or as a boundary cell including a boundary surface of the object.

14. (Currently amended) A method of storing substantial data integrating shape and physical properties according to claim 13, wherein each second cell that is a boundary cell is divided by modified Octree division into cubical third cells with boundary surfaces orthogonal to each other, and each third cell is classified as either an non-boundary~~internal~~ cell located in the interior or in the outside region of the object, or as a boundary cell including a boundary surface of the object; and

the method further includes the step of:

storing the values of physical properties for each of the second cells and each of the third cells.

15. (Currently amended) The method of storing substantial data integrating shape and physical properties according to claim 14, wherein each non-boundary~~internal~~ cell has one kind of physical property value as an attribute, and each boundary cell has two kinds of physical property values relating respectively to the interior of the object and to regions outside of the object.

16. (Previously presented) A method of storing substantial data integrating shape and physical properties according to claim 15, wherein physical property values consist of constant values that do not change by simulation and variables that change as a result of simulation.

17. (Previously presented) A method of storing substantial data integrating shape and physical properties according to claim 16, wherein the external data is selected from the group consisting of polygon data representing a polyhedron element, a tetrahedron element or a hexahedron element for a finite-element method, curved surface data for a three dimensional CAD or CG tool, and data for representing the surface of another solid as information comprising partial planes and curved surfaces.

18. (Canceled)

19. (Currently amended) A method of storing substantial data integrating shape and physical properties according to claim 178, further comprising the step of:

expressing corner points by cut points possessed by adjacent boundary cells.

20. (NEW) A method of storing substantial data integrating shape and physical properties, comprising the following steps:

(a) inputting to a computer external data consisting of boundary data of an object;

(b) dividing, by modified Octree division, the external data into cubical first cells with boundary surfaces orthogonal to each other, wherein each first cell is classified as either a non-boundary cell located in the interior or the outside region of the object, or as a boundary cell including a boundary surface of the object, wherein the modified Octree division comprises the steps of:

i. re-dividing by Octree division only boundary cells, wherein each boundary cell is divided into smaller cells, and each smaller cell is then classified as either a non-boundary cell or a boundary cell; and

ii. acquiring cut points by replacing each boundary cell, either strictly or approximately, by cut points on twelve ridge lines in three dimensions and on four ridge lines in two dimensions, wherein re-division of only boundary cells is performed until sufficient cut points are acquired to reconstruct boundary shape elements, including boundary surfaces, included in the external data; and

(c) storing the values of physical properties for each of the first cells, wherein each non-boundary cell has one kind of physical property value as an attribute, and each boundary cell has two kinds of physical property values relating respectively to the interior of the object and to regions outside of the object;

wherein physical property values consist of constant values that do not change by simulation and variables that change as a result of simulation; and

wherein the external data is selected from the group consisting of polygon data representing a polyhedron element, a tetrahedron element or a hexahedron element for a finite-element method, curved surface data for a three dimensional CAD or CG tool, and data for representing the surface of another solid as information comprising partial planes and curved surfaces.

21. (NEW) A method of storing substantial data integrating shape and physical properties according to claim 20, further comprising the step of:

expressing corner points by cut points possessed by adjacent boundary cells.